

# Analyze Thickness

## Module 8

# Overview

- What is it?
- Uses
- How to calculate it--Skew-Ts and RAOB

# Objectives

**Objective 1:** On a thickness chart, analyze for warm air advection, cold air advection, frontal locations, and the Polar Front Jet to the satisfaction of the evaluator as indicated by a Go/No Go checklist.

**Objective 2:** Using a Skew-T, determine the thickness of the 1000-500mb layer and the 850-500mb layer, to the satisfaction of the evaluator as indicated by a Go/No Go checklist.

**Objective 3:** Using RAOB data, determine the thickness of the 1000-500mb layer and the 850-500mb layer, to the satisfaction of the evaluator as indicated by a Go/No Go checklist.

# Thickness

- General Information
- Measure of the atmosphere
- Common thickness values (Rules of Thumb)

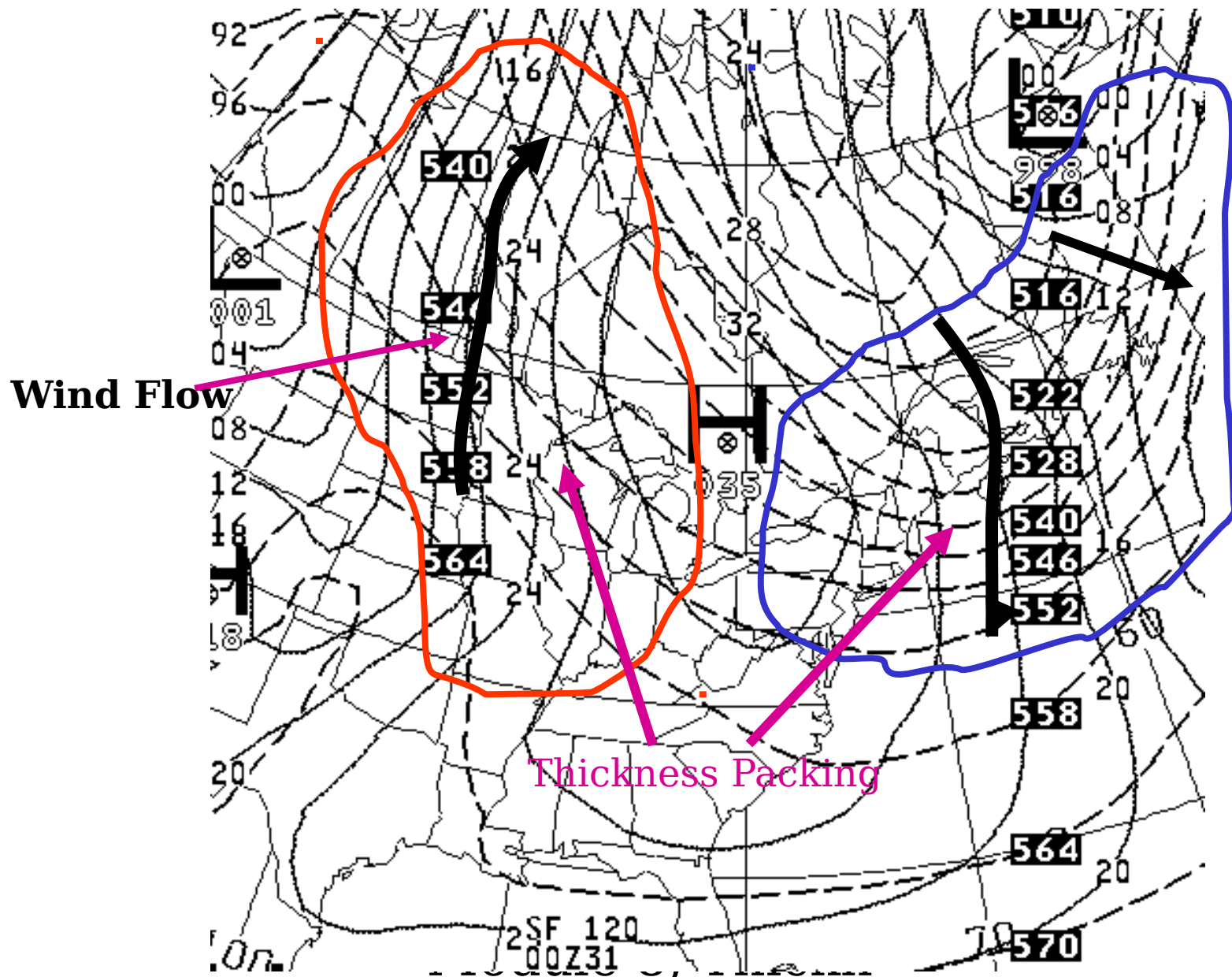
# What Can We Do With It?

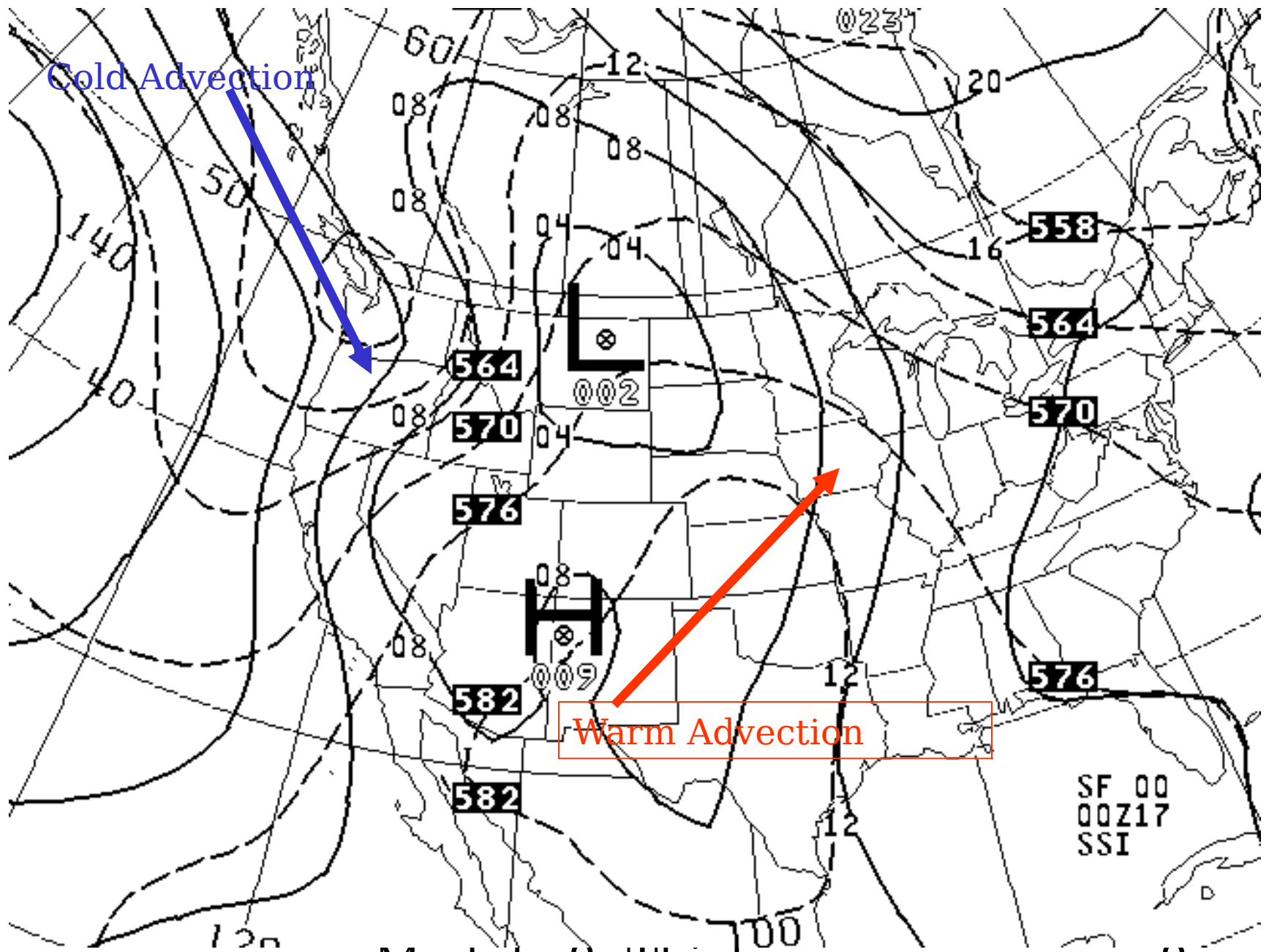
- Locate
  - Fronts
  - Temperature advection
  - Polar Front

# Advection

- Advection
  - Warm air and cold air
  - Depiction on charts

# Warm and Cold Air Advection



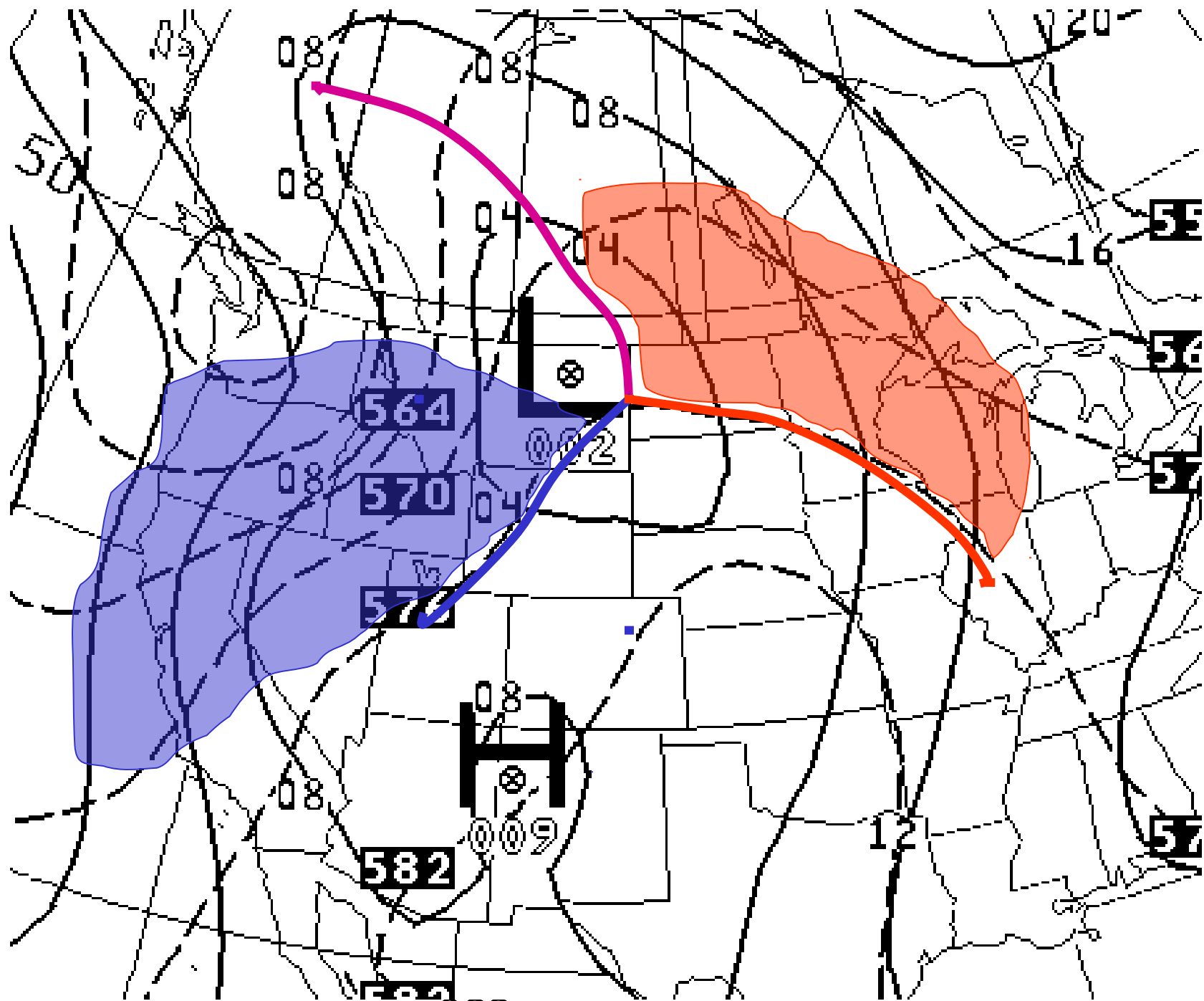


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# Fronts and thickness

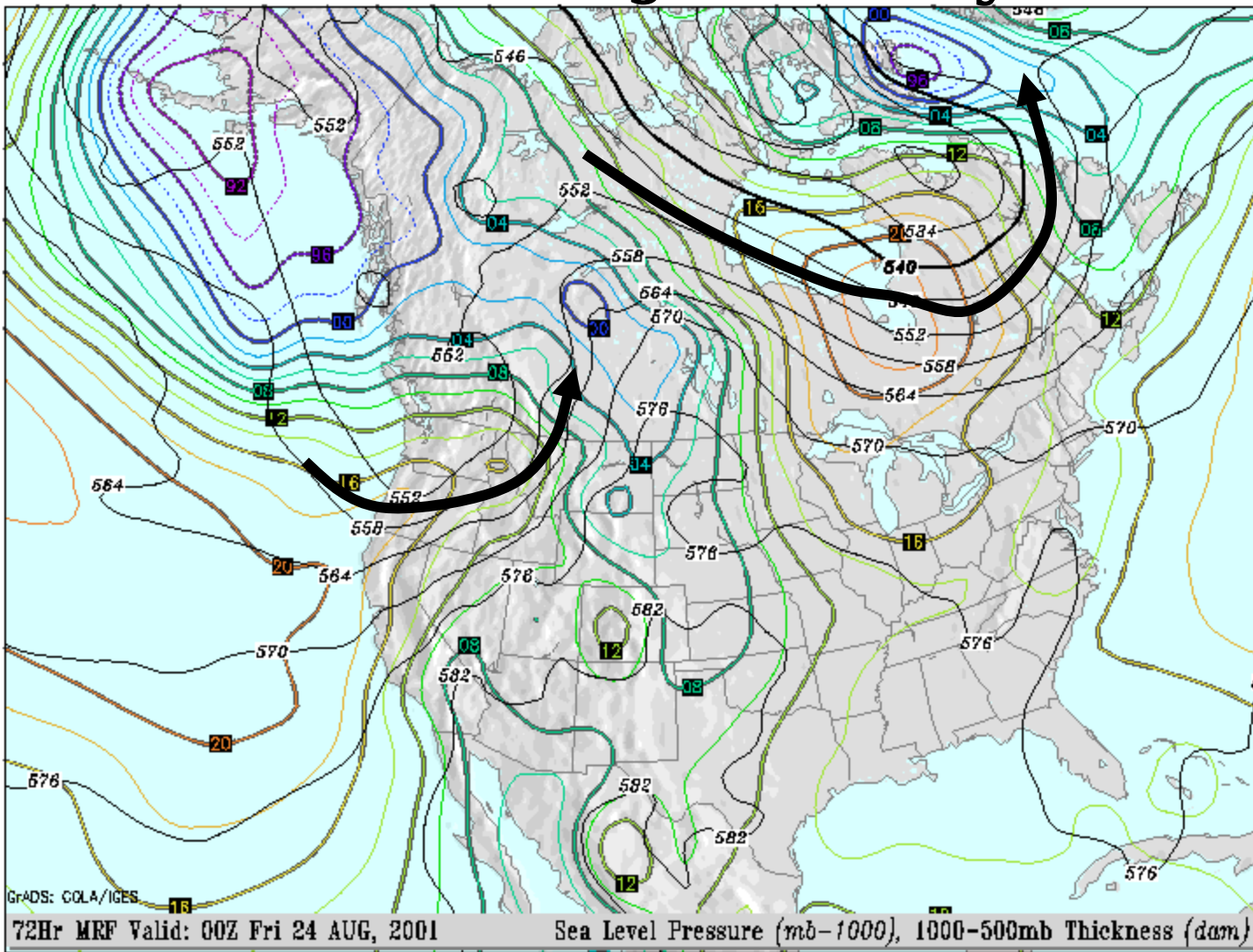
- Fronts
  - Cold
  - Warm
  - Occluded



# Jet Stream

- Polar Front Jet (PFJ)
- Location with respect to thickness

# Polar Front Jet Analysis



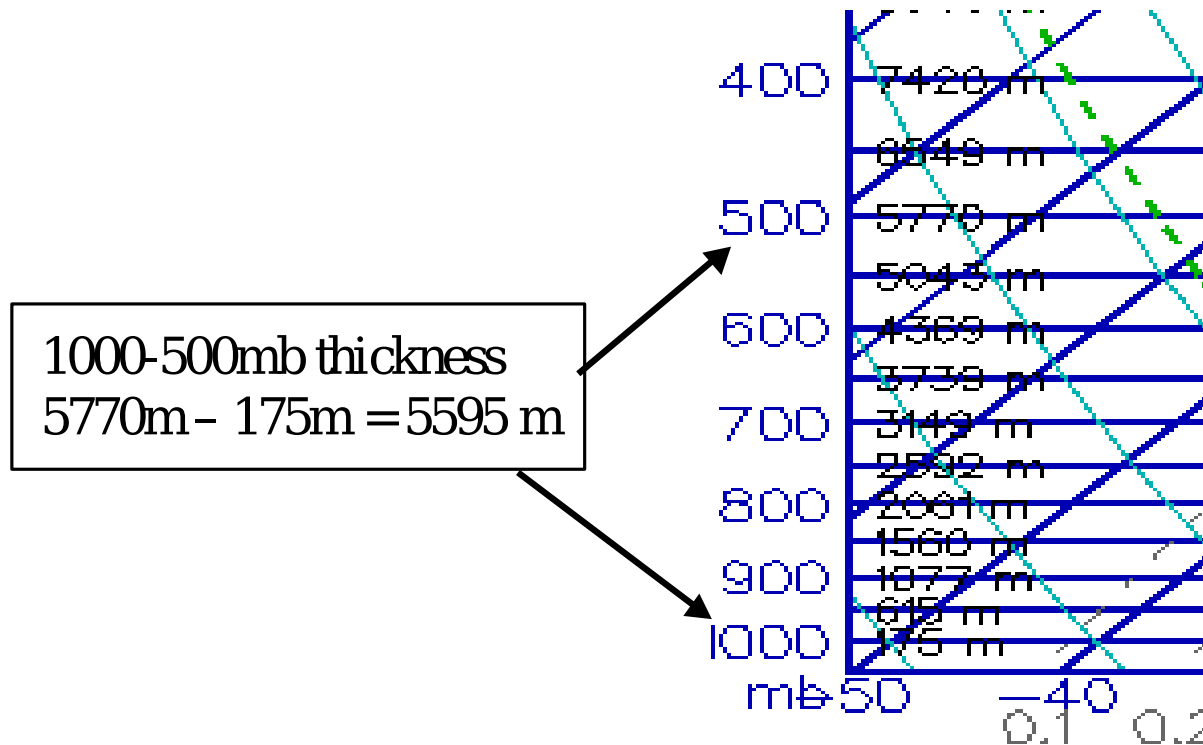
# Steps

- Steps
  - Preview/Scan
  - Analyze
  - QC

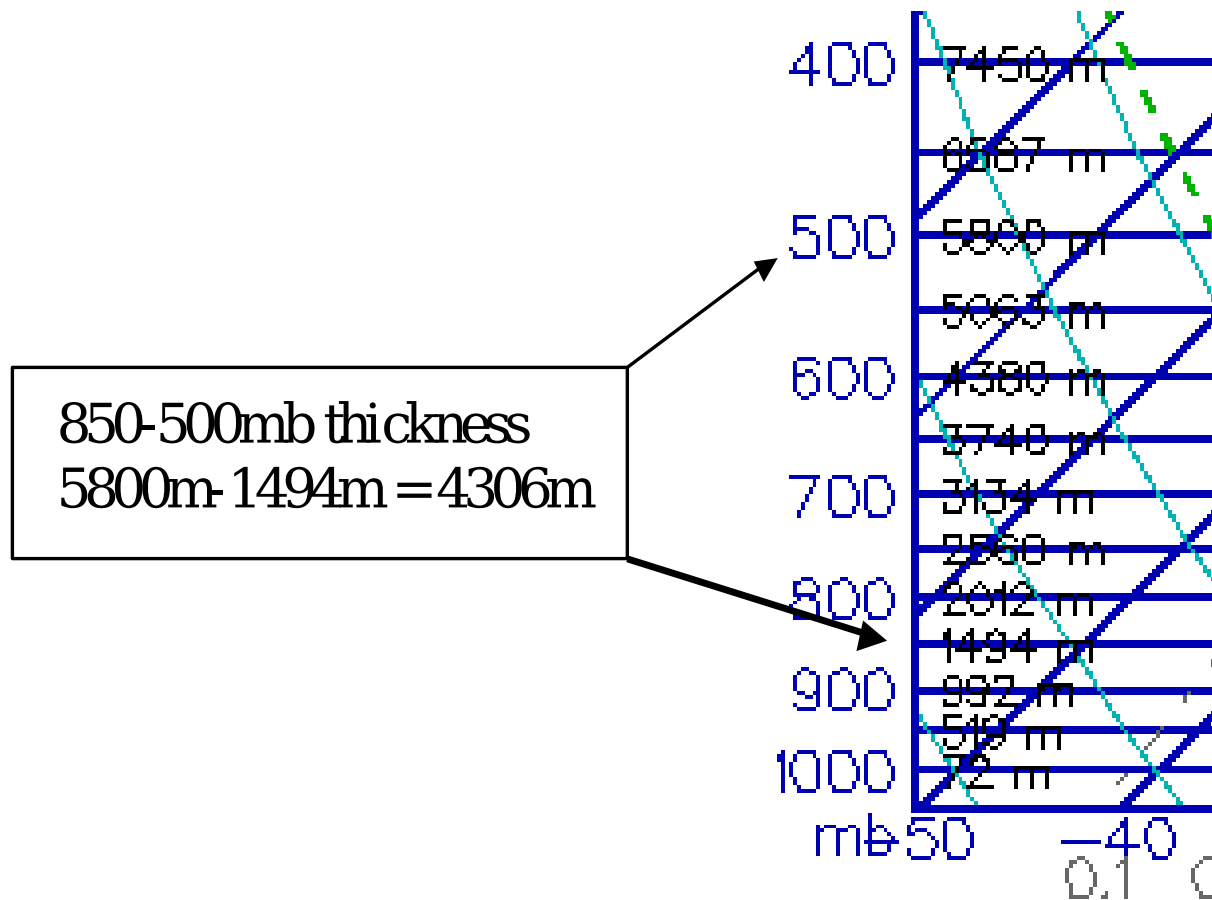
# Skew-T and Raobs

- Skew-T
  - Skew-T (1000-500MB)
  - Skew-T (850-500MB)
- RAOB

# 1000-500mb Thickness



# 850-500mb Thickness





# Thickness Using Upper Air Data

TTAA 76122 72562 99933 06711 32003 00**282** /////  
92914 00540 32506 85598 01860 33521 70137 07956  
32040 50**571** 17570 32071 40735 27578 31578 30935  
42764 31097 25055 51757 30597 20197 62749  
15372 63757 10623 62966 88181 65947 77294  
31100 41708 ~~51515 10164 00015 10194~~ ///// 32028=

5710 - 282 meters = 5428 meters

TTAA 76122 72634 99947 00307 29008 00009 /////  
92635 00900 29025 85**304** 05903 30542 70796 16313  
31542 50**527** 26731 32038 40683 40734 30040 30876  
47558 30537 25997 46359 30533 88999 77999 51515  
10159 10164 00011 10194 30034 31043=

5270 - 1304 meters = 3966 meters

# RAOB Data

## SOUNDING DATA

STATION: JAX 30.50 -81.70

010821 1200 UTC

PRES	HGT(MSL)	TEMP	DEWP	WDIR	WSPD
HPA	M	C	C	DEG	M/S
1017.	9.	23.	21.	320.	2.
1000.	158.	25.	22.	330.	4.
985.	291.	26.	21.	339.	6.
983.	305.	26.	21.	340.	6.
949.	610.	24.	19.	270.	3.
925.	843.	23.	18.	185.	4.
917.	914.	22.	18.	195.	6.
894.	1139.	20.	19.	195.	7.
885.	1219.	19.	18.	195.	7.
850.	1574.	17.	16.	210.	7.
824.	1829.	16.	11.	225.	7.
805.	2037.	15.	7.	214.	6.
795.	2134.	14.	6.	210.	6.
767.	2438.	12.	3.	215.	6.
740.	2743.	10.	1.	240.	7.
729.	2869.	9.	-1.	238.	8.
700.	3205.	7.	2.	235.	10.
661.	3658.	4.	-2.	235.	10.
617.	4228.	0.	-7.	235.	13.
614.	4267.	0.	-6.	235.	13.
613.	4280.	0.	-5.	234.	13.
604.	4398.	-1.	-8.	232.	13.
568.	4877.	-4.	-8.	225.	13.
555.	5068.	-5.	-8.	225.	14.
546.	5182.	-6.	-9.	225.	14.
528.	5458.	-8.	-12.	230.	14.
500.	5880.	-10.	-13.	240.	14.
491.	6019.	-11.	-13.	240.	15.
486.	6096.	-11.	-14.	240.	15.
459.	6535.	-13.	-17.	238.	16.
400.	7570.	-20.	-26.	235.	17.

500mb - 1000mb  
= thickness

5880 - 158 = 5772

500mb -  
850mb =  
thickness

5880 - 1574 =  
4306

# Summary

- What is it?
- Uses
- How to calculate it--Skew-Ts and RAOB
- Application

# Conclusion

Any Questions?